

ABSTRACT OF THE DISCLOSURE

An efficient method for solving a model predictive control problem is described. A large sparse matrix equation is formed based upon the model predictive control problem. The square root of H, H_r , is then formed directly, without first forming H. A square root (LSMroot) of a large sparse matrix of the large sparse matrix equation is then formed using H_r in each of a plurality of iterations of a quadratic programming solver, without first forming the large sparse matrix and without recalculating H_r in each of the plurality of iterations. The solution of the large sparse matrix equation is completed based upon LSMroot.